

REMARKS

Claims 3-6 and 8-15 are all the pending claims. By this Amendment, Applicant cancels claims 3-6 and 15. Claim 8 is amended to further clarify the invention and the dependency of claim 14 is changed to depend upon a pending claim. In addition, Applicant adds claims 16 and 17, which are clearly supported throughout the specification *e.g.*, ¶¶ 39 to 42 of the specification.

I. Preliminary Matters

Applicant thanks the Examiner for returning the initialed Form PTO/SB/08 filed with the Response on August 3, 2006, which included the un-initialed reference from the Information Disclosure Statement filed December 5, 2001.

II. Summary of the Office Action

The Examiner withdrew the previous rejections. The Examiner, however, found new grounds for rejecting the claims. Claims 3-6 and 8-15 are rejected under 35 U.S.C. § 103.

III. Prior Art Rejections

Claims 3-6 and 8-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,041,358 to Huang et al. (hereinafter “Huang”) in view of the publication Bruce Boyes, “Hard real-time connectivity: It’s in the CAN” COMPUTER DESIGN, January 1997, Internet <http://www.computer-design.com/editorial/1997/embedded/197emcan.html> (hereinafter “Boyes”)¹. Applicant respectfully traverses these grounds of rejection in view of the following comments.

¹ Cited by Applicant in Information Disclosure Statement filed December 5, 2001.

Of these rejected claims, claims 3-6 and 15 are canceled. Therefore, these rejections are rendered moot with respect to these claims. With respect to the remaining rejected claims, only claim 8 is independent.

Independent claim 8 recites: “administering by a central entity (CAN Object Identifier Server) a freely definable number of usable CAN (Controller Area Network) object identifiers; and assigning by the central entity (CAN Object Identifier Server) to each pair of communicating nodes between which Ethernet frames will be transmitted a pair out of said CAN (Controller Area Network) object identifiers.” The Examiner alleges that claim 8 relates to a method for transmitting Ethernet frames and is obvious over Huang in view of Boyes. Applicant respectfully disagrees.

In an exemplary, non-limiting embodiment of the present invention, communication of Ethernet frames between two nodes via a CAN bus is enabled by assigning a pair of CAN object identifiers to a pair of nodes. The pair of CAN object identifiers is taken from a centrally administered finite number of freely definable CAN object identifiers. That is, the number of usable CAN object identifiers is not bound to the number of nodes or node addresses. Instead, the central entity assigns a pair out of the freely defined number of CAN object identifiers to each pair of communicating nodes between which Ethernet frames will be transmitted. Accordingly, transmission of the Ethernet frames via a transmission protocol other than the Ethernet standard protocol is made possible (§ 40 of the specification). It will be appreciated that the foregoing remarks relate to the invention in a general sense, the remarks are not necessarily limitative of any claims and are intended only to help the Examiner better understand the distinguishing aspects of the claims mentioned above.

Huang, on the other hand, relates to a method and system for implementing virtual local area networks (VLANs) over ATM using LAN over ATM emulation technology. Server nodes which provide address registration/resolution and which enable multicast and broadcast routing on each VLAN, are interconnected into multiple trees. The root server nodes of each tree are interconnected according to a hypercube topology. Data structures for maintaining the locations and routing information of mobile terminals are also provided (*see* Abstract).

Specifically, Huang discloses that when node MT1 of the first VLAN1 desires to communicate with node s4 of the second node VLAN2, the node MT1 transmits an address resolution protocol (ARP) request packet containing the IP address of the destination node s4 to the LES1. The LES1 transmits the ARP packet to other LESs, including the LES2. The LES2 maintains an address translation table for translating IP addresses of each of its connected nodes to data-link layer addresses. The LES2 responds to the ARP packet by transmitting a reply packet to the LES1 containing the IP address to data-link layer address translation for the node s4. In this case, the translation may consist of the ATM address of the bridge b2. The LES1 then transmits the reply packet to BS1. The node BS1 then sets up a VCC with the node b1. Thereafter, the packets can be transmitted from the node MT1 to the node BS1 to the ATM communications network to the node b2 and then to the node s4 (Fig. 1; col. 3, lines 36 to 55).

In other words, Huang relates to the ATM LAN emulation. In Huang, the central entity LES1 maintains a lookup table containing the MAC addresses and corresponding ATM addresses of all nodes of the emulated LAN. The table maps MAC addresses to ATM addresses. That is, Huang fails to disclose or suggest the central entity administering a freely definable number of usable CAN object identifiers. In Huang, the number of usable CAN object

identifiers are bound to the number of nodes or node addresses and as such are not freely definable. In Huang, there is a mapping of MAC addresses to the ATM address. In short, Huang fails to disclose or suggest the central entity assigning a pair out of the freely defined number of CAN object identifiers to each pair of communicating nodes between which Ethernet frames will be transmitted.

Boyes is only cited for its disclosure of the CAN protocol and does not cure the deficient disclosure of Huang.

Therefore, “administering by a central entity (CAN Object Identifier Server) a freely definable number of usable CAN (Controller Area Network) object identifiers; and assigning by the central entity (CAN Object Identifier Server) to each pair of communicating nodes between which Ethernet frames will be transmitted a pair out of said CAN (Controller Area Network) object identifiers,” as set forth in claim 8 is not suggested by the combined disclosure of Huang and Boyes, which lack assigning a pair from freely definable number of CAN object identifiers. For at least these exemplary reasons, claim 8 is patentable over Huang in view of Boyes. Accordingly, Applicant respectfully requests the Examiner to withdraw this rejection of claim 8 and its dependent claims 9-14.

In addition, dependent claim 9 recites: the central entity requests return of the assigned CAN object identifiers as supply of free CAN object identifiers becomes scarce. The Examiner contends the Huang discloses these unique features of claim 9 (*see* pages 4-5 of the Office Action). Applicant respectfully disagrees.

Col. 4, lines 8 to 36 of Huang recite:

One LES and one BUS are typically provided per VLAN. However, the LES and BUS need not be

implemented on physically distinct or separate hardware. Rather, the LES and BUS functions may be provided by a single router computer or may be implemented in an ATM switch.

Interconnection of the nodes MT1-MT5 into a VLAN present a special problem due to their mobility. In particular, a mobile terminal, by its nature, is mobile, and moves from location to location. When the mobile terminal moves, it may leave the proximity of a base station which currently provides communication for the mobile terminal, and enter the proximity of a new base station. For example, as shown in FIG. 2, the node MT3, in the proximity of, and which is provided packet communication by, the node BS2, may move out of proximity with BS2 and into proximity with BS1. When this occurs, the nodes MT3, BS2 and BS1 execute a handoff procedure whereby the node MT3 first transmits a handoff message to the node BS2. In response, the node BS2 "deregisters" the node MT3 and ceases to provide communications therefor. The node MT3 then transfers a message to the node BS1 which causes the node BS1 to "register" the node MT3 and begin providing communications for the node MT3.

When a mobile terminal moves such that it is handed off from a base station in one VLAN to a base station in another VLAN, some manner of maintaining the moving mobile terminal in its respective VLAN must be provided. Such provision must be achieved for both unicast and broadcast routing.

As is visible from the above-quoted passage, Huang does not disclose or even remotely suggest that the supply of free CAN object identifiers becomes scarce and that the central entity requests return of the assigned CAN object identifiers. Boyes does not cure the above-identified deficiencies of Huang. For at least these additional exemplary reasons, claim 9 is patentable over Huang in view of Boyes.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appl. No. 09/935,573
Attorney Docket No.: Q65540

IV. New Claims


In order to provide more varied protection, Applicant adds claims 16 and 17, which are patentable at least by virtue of their dependency on claim 8.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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